

63. (Unamended) A control system for controlling a telephony system, comprising:

a speech recognition user interface for allowing a user to input speech commands for controlling the telephony system, said speech recognition user interface comprising:

- (i) means for receiving an input speech command;
- (ii) means for storing a plurality of reference word models;
- (iii) means for comparing the input speech command with the stored reference word models to generate a recognition result; and

control means, responsive to the recognition result generated by said speech recognition user interface, for controlling the telephony system in accordance with the input speech command;

wherein said speech recognition user interface is adapted to be able to recognize continuously spoken commands comprising a plurality of words defining a desired telephony service and an identifier of another user;

wherein said speech recognition user interface further comprises means for storing a language model which defines sequences of the reference word models which can be compared with the input speech command, in order to define allowed input speech commands; and

wherein said comparing means is operable to compare the input speech command with selected sequences of the reference word models, selected in accordance with the stored language model and wherein said control means comprises execution means for executing an operation corresponding to the input speech command.

64. (Unamended) A telephony system comprising:

a speech recognition user interface for allowing a user to input speech commands for controlling telephony services provided by the system, said speech recognition user interface comprising:

(i) means for receiving an input speech command;

(ii) means for storing a plurality of reference models; and

(iii) means for comparing the input speech command with the stored reference models to generate a recognition result; and

execution means, responsive to the recognition result generated by said speech recognition user interface, for executing an operation corresponding to the speech command,

wherein each user of the system is identified by a telephone number and an associated identifier, and wherein said execution means comprises:

means for receiving data identifying a current status of the telephony system; and

means for predicting a desired telephony service using the current system status data;

wherein if the user input command identifies a telephony service, then said execution means is operable to provide the desired telephony services identified in the input speech command; and

wherein said execution means is operable to predict a desired telephony service using said predicting means and the current system status data, if the input speech command does not identify a desired telephony service.

65. (Unamended) A system according to claim 63, wherein the execution means further comprises:

(i) means for holding current system status information;

(ii) means for checking that the operation corresponding to the speech command does not conflict with the current system status information; and

(iii) means for requesting the user to confirm the speech command prior to execution if said checking means determines that the input speech command does not conflict with said current system status information, and

wherein a buffer is provided for buffering new system status information which is generated whilst said execution means awaits user confirmation.

66. (Unamended) A system according to claim 64, wherein the current system status data comprises, for each user, data indicating: who the user is currently speaking to, who the user is dialing, who is on hold, who is trying to ring that user, whether that user is playing messages, who has that user on hold, and/or who has that user in a conference.

67. (Unamended) A system according to claim 63, wherein the desired telephony service comprises one of the following services: setting up a call, transferring a call, holding a call, returning to a call, setting up a conference call, and message selection and replaying.

68. (Unamended) A system according to claim 63, wherein the control means further comprises interpretation means for interpreting the recognition result, which uses a factory set pre-stored dictionary.

69. (Unamended) A system according to claim 63, further comprising a plurality of storage means each associated with a respective user of the system, for storing the telephone numbers and associated identifiers of other users, whereby a user can designate another user of the system by speaking the corresponding identifier into said speech recognition user interface.

70. (Unamended) A system according to claim 69, wherein said execution means comprises means for predicting, using current system status information, what telephony service is wanted if the user inputs, via said speech recognition user interface, only the identifier of another user.

71. (Unamended) A system according to claim 63, wherein said speech recognition user interface comprises means for training said speech recognition user interface to recognize new speech commands.

72. (Unamended) A system according to claim 71, further comprising means for receiving a new input speech command comprising two or more whole words; means for generating a word model for each of the words contained within the new input speech

command, if they do not already exist; and means for adapting the language model to accommodate the new speech command.

73. (Unamended) A system according to claim 63, wherein each user has an associated set of reference word models.

74. (Unamended) A system according to claim 63, wherein said control means is provided in a local exchange.

75. (Unamended) A system according to claim 63 in combination with the telephony system, further comprising a number of communication devices for use by users of the telephony system, which are interconnected via a local exchange.

76. (Unamended) A system according to claim 75, wherein the execution means is operable to communicate with each of the users via the respective communication devices, information representative of the current status of the system.

77. (Unamended) A system according to claim 75, wherein at least some of the communication devices have an associated display arranged to display messages representative of the operation corresponding to the input speech command, for a predetermined amount of time.

78. (Unamended) A system according to claim 75, wherein the local exchange is connected to the public exchange so that users connected to the local exchange can communicate with remote users on the public exchange and vice versa.

79. (Unamended) A system according to claim 75, further comprising a mail box facility which is operable to store messages for users of the system left by callers, when the users are unable to take the calls.

80. (Unamended) A system according to claim 79, wherein the mail box facility is operable to associate and store each message with the telephone number of the caller who left the message.

81. (Unamended) A system according to claim 80, wherein the speech recognition user interface includes a command that allows users to request the mail box facility to replay messages from a particular caller.

82. (Unamended) A system according to claim 81, wherein after replaying one of a plurality of selected messages a user can access other telephony services and return and replay the remaining selected messages after using those other telephony services.

83. (Unamended) A system according to claim 75, further comprising means for sharing use of said speech recognition user interface and said execution means between a number of different users.

84. (Unamended) A system according to claim 75, further comprising a plurality of speech recognition user interfaces and a plurality of execution means for simultaneous use by a plurality of different users.

85. (Unamended) A system according to claim 63, wherein said control system is provided in a communication device.

88. (Unamended) A mail box facility for use with a telephony system, comprising:

a speech recognition user interface for allowing a user to input speech commands for controlling the mail box facility, and for outputting a recognition result based on comparing the input speech commands with pre-stored reference models;

control means, responsive to the recognition result output from said speech recognition user interface, for controlling the mail box facility in accordance with an input speech command; and

storage means for storing messages left by callers, when the users are unable to take the calls,

wherein said storage means comprises means for receiving the telephone number of the caller and for storing the telephone number with the message, whereby users can request, via said speech recognition user interface, the mailbox facility to replay messages from a particular caller.

89. (Unamended) A control system for controlling a telephony system, comprising:

a speech recognition user interface for allowing a user to input speech commands for controlling the telephony system, the speech recognition user interface comprising:

- (i) an input terminal for receiving an input speech command;
- (ii) a memory for storing a plurality of reference word models; and
- (iii) a comparator for comparing the input speech command with the stored reference word models to generate a recognition result; and

a controller, responsive to the recognition result generated by said speech recognition user interface, for controlling the telephony system in accordance with the input speech command;

wherein said speech recognition user interface is adapted to be able to recognize continuously spoken commands comprising a plurality of words defining a desired telephony service and an identifier of another user;

wherein said speech recognition user interface further comprises a memory for storing a language model which defines sequences of the reference word models which can be compared with the input speech command, in order to define allowed input speech commands; and

wherein said comparator is operable to compare the input speech command with selected sequences of the reference word model, selected in accordance with the stored language model and wherein said controller comprises a command executioner for executing an operation corresponding to the input speech command.

90. (Unamended) A telephony system comprising:

a speech recognition user interface for allowing a user to input speech commands for controlling telephony services provided by the system, said speech recognition user interface comprising:

(i) an input terminal for receiving an input speech command;

(ii) a memory for storing a plurality of reference models; and

(iii) a comparator for comparing the input speech command with the stored reference models to generate a recognition result; and

a command executioner, responsive to the recognition result generated by said speech recognition user interface, for executing an operation corresponding to the speech command,

wherein each user of the system is identified by a telephone number and an associated identifier, and wherein the command executioner comprises:

an input terminal for receiving data identifying a current status of the telephony system; and

a predictor for predicting a desired telephony service using the current system status data;

wherein if said user input command identifies a telephony service, then said command executioner is operable to provide the desired telephony service identified in the input speech command; and

wherein said command executioner is operable to predict a desired telephony service using said predictor and the current system status data, if the input speech command does not identify a desired telephony service.

91. (Unamended) A system according to claim 89, wherein the command executioner further comprises:

- (i) a memory for holding current system status information;
- (ii) a checker for checking that the operation corresponding to the input speech command does not conflict with the current system status information; and
- (iii) a prompter for requesting the user to confirm the speech command prior to execution if said checking means determines that the input speech command does not conflict with the current system status information, and

wherein a buffer is provided for buffering new system status information which is generated while the execution means awaits user confirmation.

92. (Unamended) A system according to claim 90, wherein the current system status data comprises, for each user, data indicating: who the user is currently speaking to, who the user is dialing, who is on hold, who is trying to ring that user, whether that user is playing messages, who has that user on hold, and/or who has that user in a conference.

93. (Unamended) A system according to claim 89, wherein the desired telephony service comprises one of the following services: setting up a call, transferring a call, holding a call, returning to a call, setting up a conference call, and message selection and replaying.

94. (Unamended) A system according to claim 89, wherein said controller further comprises an interpreter for interpreting the recognition result, which uses a factory set pre-stored dictionary.

95. (Unamended) A system according to claim 89, further comprising a plurality of memory areas each associated with a respective user of the system, for storing the telephone numbers and associated identifiers of other users, whereby a user can designate another user of the system by speaking the corresponding identifier into the speech recognition user interface.

96. (Unamended) A system according to claim 95, wherein the command executioner comprises a predictor for predicting, using current system status information, what telephony service is wanted if said user inputs, via said speech recognition user interface, only the identifier of another user.

97. (Unamended) A system according to claim 89, wherein said speech recognition user interface comprises a trainer for training the interface to recognize new speech commands.

98. (Unamended) A system according to claim 97, further comprising an input for receiving a new input speech command comprising two or more whole words; a word model generator for generating a word model for each of the words contained within the

new input speech command, if they do not already exist; and an adaptor for adapting the language model to accommodate the new input speech command.

99. (Unamended) A system according to claim 89, wherein each user has an associated set of reference word models.

100. (Unamended) A system according to claim 89, wherein said controller is provided in a local exchange.

101. (Unamended) A system according to claim 89 in combination with the telephony system, further comprising a number of communication devices for use by users of the telephony system, which are interconnected via a local exchange.

102. (Unamended) A system according to claim 101, wherein said command executioner is operable to communicate with each of the users via the respective communication devices, information representative of the current status of the system.

103. (Unamended) A system according to claim 101, wherein at least some of the communication devices have an associated display arranged to display messages representative of the operation corresponding to the input speech command, for a predetermined amount of time.

104. (Unamended) A system according to claim 101, wherein the local exchange is connected to the public exchange so that users connected to the local exchange can communicate with remote users on the public exchange and vice versa.

105. (Unamended) A system according to claim 101, further comprising a mail box facility which is operable to store messages for users of the system left by callers, when the users are unable to take the calls.

106. (Unamended) A system according to claim 105, wherein the mail box facility is operable to associate and store each message with the telephone number of the caller who left the message.

107. (Unamended) A system according to claim 106, wherein said speech recognition user interface includes a command that allows users to request the mail box facility to replay messages from a particular caller.

108. (Unamended) A system according to claim 107, wherein after replaying one of a plurality of selected messages a user can access other telephony services and return and replay the remaining selected messages after using those other telephony services.

109. (Unamended) A system according to claim 101, further comprising a multiplexer for time sharing the use of said speech recognition user interface and said command executioner between a number of different users.

110. (Unamended) A system according to claim 101, further comprising a plurality of speech recognition user interfaces and a plurality of command executioners for simultaneous use by a plurality of different users.

111. (Unamended) A system according to claim 89, wherein said controller is provided in a communication device.

112. (Unamended) A method of controlling a telephony system comprising the steps of:

receiving an input speech command comprising a plurality of continuously spoken words defining a desired telephony service and an identifier of another user;

storing a plurality of reference word models and a language model which defines sequences of the reference word models which can be compared with the input speech command, in order to define allowed input speech commands;

comparing an input speech command with selected sequences of the reference word models, selected in accordance with the stored language model, to generate a recognition result; and

controlling the telephony system in accordance with the generated recognition result by executing an operation corresponding to the input speech command.

113. (Unamended) A telephony method comprising the steps of:

providing a speech recognition user interface for allowing a user to input speech commands for controlling telephony services provided by the system, the speech recognition user interface comprising:

- (i) an input terminal for receiving an input speech command;
- (ii) a memory for storing a plurality of reference models; and
- (iii) a comparator for comparing the input speech command with said stored reference models to generate a recognition result; and

executing an operation corresponding to the speech command in dependence upon the recognition result generated by the speech recognition user interface,

wherein each user of the system is identified by a telephone number and an associated identifier, and wherein the executing step comprises the steps of:

- receiving data identifying a current status of the telephony system; and
- predicting a desired telephony service using the current system status data;

wherein if the user input command identifies a telephony service, then said executing step provides the desired telephony service identified in the input speech command; and

wherein said executing step predicts a desired telephony service using said predicting step and the current system status data, if the input speech command does not identify a desired telephony service.

114. (Unamended) A method according to claim 112, wherein the executing step further comprises the steps of:

- holding current system status information;

checking that the operation corresponding to the input speech command does not conflict with the current system status information;

requesting the user to confirm the speech command prior to execution if said checking step determines that the input speech command does not conflict with the current system status information, and

buffering new system status information which is generated while the executing step awaits user confirmation .

115. (Unamended) A method according to claim 113, wherein the current system status data comprises, for each user, data indicating: who the user is currently speaking to, who the user is dialing, who is on hold, who is trying to ring that user, whether that user is playing messages, who has that user on hold, and/or who has that user in a conference.

116. (Unamended) A method according to claim 112, wherein the desired telephony service comprises one of the following services: setting up a call, transferring a call, holding a call, returning to a call, setting up a conference call, and message selection and relaying.

117. (Unamended) A method according to claim 112, wherein said control step further comprises the step of interpreting the recognition result using a factory set pre-stored dictionary.

118. (Unamended) A method according to claim 112, further comprising the step of providing a plurality of storage means each associated with a respective user of the system, for storing the telephone numbers and associated identifiers of other users, whereby a user can designate another user of the system by inputting a spoken command comprising the corresponding identifier.

119. (Unamended) A method according to claim 118, wherein said executing step comprises the step of predicting, using current system status information, what telephony service is wanted if the user's spoken input command does not identify a desired telephony service.

120. (Unamended) A method according to claim 112, further comprising the step of training the language model to recognize new speech commands.

121. (Unamended) A method according to claim 120, further comprising the steps of: receiving a new input speech command comprising two or more whole words; generating a word model for each of the words contained within the new input speech command, if they do not already exist; and adapting the language model to accommodate the new speech command.

122. (Unamended) A method according to claim 112, wherein each user has an associated set of reference word models.

123. (Unamended) A method according to claim 112, wherein said control step is performed in a local exchange.

124. (Unamended) A method according to claim 112, wherein said executing step communicates with each of the users via a respective communication device, information representative of the current status of the system.

125. (Unamended) A method according to claim 124, wherein at least some of the communication devices have an associated display, wherein said method further comprises the step of displaying messages representative of the operation corresponding to the input speech command, for a predetermined amount of time.

126. (Unamended) A method according to claim 112, further comprising the step of storing messages for users of the system left by callers, when the users are unable to take the calls, in a mail box facility.

127. (Unamended) A method according to claim 126, further comprising the steps of associating and storing each message in the mail box facility with the telephone number of the caller who left the message.

128. (Unamended) A method according to claim 127, further comprising the step of receiving a spoken input command requesting for the mail box facility to replay messages from a particular caller.

129. (Unamended) A method according to claim 128, wherein after replaying one of a plurality of selected messages, the method further comprises the steps of accessing other telephony services and returning and replaying the remaining selected messages after using those other telephony services.

130. (Unamended) A system according to claim 112, further comprising the step of sharing use of a speech recognition user interface between a number of different users.

131. (Unamended) A computer readable medium storing computer executable process steps for controlling a telephony system, the process steps comprising:

steps for providing a speech recognition user interface for allowing a user to input speech commands for controlling the telephony system, comprising:

(i) steps for receiving an input speech command;

(ii) steps for storing a plurality of reference word models; and

(iii) steps for comparing the input speech command with said stored reference word models to generate a recognition result; and

steps for controlling the telephony system in accordance with the input speech command;

wherein the speech recognition user interface is adapted to be able to recognize continuously spoken commands comprising a plurality of words defining a desired telephony service and an identifier of another user;

wherein said steps for providing a speech recognition user interface further comprises steps for storing a language model which defines sequences of the reference

word models which can be compared with the input speech command, in order to define allowed input speech commands; and

wherein said steps for comparing include steps for comparing the input speech command with selected sequences of the reference word model, and wherein the steps for controlling comprises steps for executing an operation corresponding to the input speech command.

132. (Unamended) A computer readable medium storing computer executable process steps defining a telephony system, the process steps comprising:

steps for providing a speech recognition user interface allowing a user to input speech commands for controlling telephony services provided by the system, the steps for providing the speech recognition user interface comprising:

(i) steps for receiving an input speech command;

(ii) steps for storing a plurality of reference models; and

(iii) steps for comparing the input speech command with said stored

reference models to generate a recognition result; and

steps for executing an operation corresponding to the speech command in response to the generated recognition result,

wherein each user of the system is identified by a telephone number and an associated identifier, and wherein the steps for executing comprise:

steps for receiving data identifying a current status of the telephony system; and

steps for predicting a desired telephony service using the current system status data;

wherein if the user input command identifies a telephony service, then said steps for executing provide the desired telephony service identified in the input speech command; and

wherein said steps for executing predict a desired telephony service using said steps for predicting and the current system status data, if the input speech command does not identify a desired telephony service.

133. (Unamended) A computer readable medium storing computer executable process steps for providing a mail box facility for use with a telephony system, the process steps comprising:

steps for providing a speech recognition user interface for allowing a user to input speech commands for controlling the mail box facility, and for outputting a recognition result based on comparing the input speech commands with pre-stored reference models;

steps for controlling the mail box facility in accordance with an input speech command in response to the recognition result; and

steps for storing messages left by callers, when the users are unable to take the calls,

wherein said steps for storing cause each message to be stored in the mail box together with the telephone number of the caller who left the message, whereby users can request, via the speech recognition user interface, the mail box facility to replay messages from a particular caller.

134. (Unamended) A computer executable program for controlling a telephony system, the program comprising:

a code for instructing the telephony system to provide a speech recognition user interface for allowing a user to input speech commands for controlling the telephony system, the speech recognition user interface code comprising:

(i) a code for instructing the telephony system to receive an input speech command;

(ii) a code for instructing the telephony system to store a plurality of reference word models; and

(iii) a code for instructing the telephony system to compare the input speech command with the stored reference word models to generate a recognition result; and

a code for controlling the telephony system in accordance with the input speech command in dependence upon the generated recognition result;

wherein the speech recognition user interface is adapted to be able to recognize continuously spoken commands comprising a plurality of words defining a desired telephony service and an identifier of another user;

wherein said speech recognition user interface code further comprises a code instructing the telephony system to store a language model which defines sequences of the reference word models which can be compared with the input speech command, in order to define allowed input speech commands; and

wherein said code for comparing includes a code for instructing the telephony system to compare the input speech command with selected sequences of the reference word model, selected in accordance with the stored language model and wherein said code for

controlling comprises a code for instructing the telephony system to execute an operation corresponding to the input speech command.

135. (Unamended) A computer executable program for defining a telephony system, the program comprising:

a code for instructing the telephony system to provide a speech recognition user interface for allowing a user to input speech commands for controlling telephony services provided by the system, the speech recognition user interface code comprising:

(i) a code for instructing the telephony system to receive an input speech command;

(ii) a code for instructing the telephony system to store a plurality of reference models; and

(iii) a code for instructing the telephony system to compare the input speech command with the stored reference models to generate a recognition result; and

a code for instructing the telephony system to execute an operation corresponding to the speech command in dependence upon the generated recognition result,

a code for instructing the telephony system to identify each user of the system by a telephone number and an associated identifier, and wherein the execution code comprises:

a code for instructing the telephony system to receive data identifying a current status of the telephony system; and

a code for instructing the telephony system to predict a desired telephony service using the current system status data;

wherein if the user input command identifies a telephony service, then said execution code instructs the telephony system to provide the desired telephony service identified in the input speech command; and

wherein said execution code instructs the telephony system to predict a desired telephony service using said code for predicting and the current system status data, if the input speech command does not identify a desired telephony service.

136. (Unamended) Computer executable program for providing a telephony system, comprising:

a code for instructing the telephony system to provide a speech recognition user interface for allowing a user to input speech commands for controlling the mail box facility, and for outputting a recognition result based on comparing the input speech commands with pre-stored reference models;

a code for controlling the mail box facility in accordance with an input speech command in response to the recognition result; and

a code for instructing the telephony system to store messages left by callers, when the users are unable to take the calls,

wherein said code for storing messages is operable to instruct the telephony system to store each message in the mail box with the telephone number of the caller who left the message, whereby users can request, via the speech recognition user interface, the mail box facility to replay messages from a particular caller.

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-137. (New) A control system for controlling an information system,

comprising:

a speech recognition user interface allowing a user to input speech commands for controlling the information system, said speech recognition user interface comprising:

(i) means for receiving an input speech command;

(ii) means for storing a plurality of reference models;

(iii) means for comparing the input speech command with the stored reference models to generate a recognition result; and

control means, responsive to the recognition result generated by said speech recognition user interface, for controlling the information system in accordance with the input speech command,

wherein said speech recognition user interface is adapted to recognize continuously spoken commands comprising at least one word defining a desired information service,

wherein said speech recognition user interface further comprises means for storing a language model which defines sequences of the reference models which can be compared with the input speech command, in order to define allowed input speech commands,

wherein said comparing means is operable to compare the input speech command with selected sequences of the reference models, selected in accordance with the stored language model, and

wherein said control means comprises execution means for executing an operation corresponding to the input speech command.

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138. (New) A control system for controlling an information system comprising:
a speech recognition user interface allowing a user to input speech commands for
controlling the information system, the speech recognition user interface comprising:

(i) an input terminal for receiving an input speech command;
(ii) a memory for storing a plurality of reference models; and
(iii) a comparator for comparing the input speech command with the stored
reference models to generate a recognition result; and
a controller, responsive to the recognition result generated by said speech
recognition user interface, for controlling the information system in accordance with the
input speech command,

wherein said speech recognition user interface is adapted to recognize
continuously spoken commands comprising at least one word defining a desired
information service,

wherein said speech recognition user interface further comprises a memory for
storing a language model which defines sequences of the reference models which can be
compared with the input speech command, in order to define allowed input speech
commands,

wherein said comparator compares the input speech command with selected
sequences of the reference models, selected in accordance with the stored language model,
and

wherein said controller comprises a command executer for executing an operation
corresponding to the input speech command.--